

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

see form PCY/ISA/220

Date of mailing
(day/month/year)

see form PCT/ISA/210 (page 2)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION

See paragraph 2 below

International application No.
PCT/EP2005/0050916

International filing date (day/month/year)
02.03.2005

Priority date (day/month/year)
20.03.2004

International Patent Classification (IPC) or both national classification and IPC
F01G01N27/407

Applicant

MTU AERO ENGINES GMBH

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/EP2005/0050916

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing
☐ table(s) related to the sequence listing

b. format of material

- ☐ in written format
☐ in computer readable form

c. time of filing/furnishing

- ☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE
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International application No.
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Box No. II Priority

1. ☒ The following document has not yet been furnished:

☒ copy of the earlier application whose priority has been claimed (Rules 43*bis*.1 and 66.7(a)).

☒ translation of the earlier application whose priority has been claimed (Rules 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

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International application No.
PCT/EP2005/0050916

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	5-15	YES
	Claims	1-4	NO
Inventive step (IS)	Claims		YES
	Claims	1-15	NO
Industrial applicability (IA)	Claims	1-15	YES
	Claims		NO

2. Citations and explanations:

see supplementary page

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
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Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see supplementary page

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY
(SUPPLEMENTARY SHEET)

International Application No. PCT/EP2005/050916

Re Point V

1. Reference is made to the following documents:

D1: US 2003/205078 A1
D2: EP-A-0 862 056
D3: US-B1-6 340 419
D4: DE 44 24 539 A1
D5: US-A-4 282 080
D6: DE 101 56 248 C1

2. The present application does not meet the requirements of Article 33(1) PCT because the object of Claim 1 is not novel as defined in Article 33(2) PCT.

Document D1 describes (the references in brackets refer to this document, in particular Figure 2):

a sensor element for determining a physical property of a test gas (title), having a solid electrolyte body (1), an external electrode (5) situated on the solid electrolyte body and exposed to the test gas, an internal electrode (7) situated in the solid electrolyte body and an electrical resistance heater (§ 110) situated in the solid electrolyte body and embedded in an electrical insulation, the external electrode being situated in a cavity formed in the solid electrolyte body (Figure 2, "recess 1a," § 112).

3. Furthermore Claim 1 does not contain an inventive step in relation to Document D2 or also D3 and D4 (Art 33(3) PCT).

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- 3.1 The sensor element according to Claim 1 differs from the sensor element described in D2 (or also D3 and D4) in that the cavity is formed in the solid electrolyte body (D2: Elements 40 and 41 are not made of a solid electrolyte; the same applies to elements 101 and 102 in D3 and element 28 in D4).
- 3.2 The object to be achieved by the present invention can thus be seen as a simplification of the sensor structure.
- 3.3 The system described in Claim 1 of the present application cannot be considered as containing an inventive step (Article 33(3) PCT) because the accommodation of the external electrode in a recess provided in the solid electrolyte body for that purpose is seen as an obvious constructional measure which those skilled in the art would use to solve the technical problem without inventive activity.
4. Dependent Claims 2 through 15 contain no features, which in combination with the features of any claim to which they refer, meet the PCT requirements with respect to novelty or inventive step because these features are either known from D1 through D4 or because they are obvious to those skilled in the art - see also Documents D5 and D6.

Re Point VIII

Claim 1 appears to be too broad to be supported by the description. In fact, the claimed sensor element appears to be usable only for gas measurements. The requirements of Art. 6 PCT are thus not met.